Mapping the Safety of Navigation in UK Waters

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Introduction and Overview

- Maritime accidents result in significant loss of life, pollution and economic damage.
- Incidents are not random - numerous works attempting to predict risk.
- Valuable intelligence gained through analysing where and why these incidents occur.
- This presentation furthers these goals using the case study of the UK.
Impact of Spatial Maritime Risk Analysis

1. Requirement under International Conventions.

2. Useful for driving policy (e.g. Offshore Wind Farms).

3. Enables more effective allocation of risk control measures.
Methodology

Data Collation → Data Fusion w/DGGS → Calculate Accident Rates → Statistical Analysis → Discussion
Discrete Global Grid System

**DGGS:**

- Equal Area Hexagonal Global Grid System promoted by the OGC*.
- Enables efficient and scalable fusion of multiple datasets.

**Multiple Heterogenous Datasets:**

- AIS Data
- Incident
- MetOcean
- Topographic
- Bathymetric
- Infrastructure

*https://www.ogc.org/projects/groups/dggsswg*
Statistical Analysis of Each Cell
Summary

• Significant variation in maritime accident rates across UK waters.

• By combining multiple heterogenous spatial datasets, insights into the variation in maritime risk can be derived.

• The method and results can support navigation authorities in better managing waterways and promote safety at sea.
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